The Importance of the Agricultural Revolution

BY PROFESSOR RAYMOND G. TAYLOR, KANSAS STATE AGRICULTURAL COLLEGE.

It is almost a commonplace in these days to say that the roots of our modern complex social and political life lie somewhere close to the great mechanical changes wrought in eighteenth century England. The fact that there was an agricultural revolution in England, vitally related to the more familiar industrial revolution, and to our own progress, has received but scant notice from American students. To a certain extent all agricultural history has been treated in a more or less perfunctory, detached way, but nowhere else so much as in the case of the agricultural revolution. At best this is a serious oversight. Any account of industry, or of national life, that does not include agricultural development as a vital part of an integrated whole is incomplete and misleading. To quote one of our early societies: "The interests of *Commerce, Arts,* and *Manufactures* form, with *Agriculture,* an indissoluble union, to which citizens of every class and calling, have it amply in their power to contribute."[1]

The great changes in English agriculture became noticeable early in the eighteenth century. They were not completed until well into the nineteenth, long after the factory system was established. Scientific tillage, new root crops and artificial grasses, rotation of crops, improved live stock and enclosures by Parliamentary act, all helped to make the existence of the small farmer untenable and fit England to supply her swelling industrial cities with food for workers and raw material for power-driven machines. In turn the increased demands from the cities accelerated the agricultural changes, as did also the canals and turnpikes being built all over England. Moreover the awakened mechanical genius of England contributed directly to the new agriculture. Long before the mechanical revolution, farmers were demanding better agricultural implements and more of them.[2] Now the response came in the form of plows, drills, rakes, mowing and threshing machines, scarifiers, chaff-cutters and other tools.[3] A world war and the corn laws following hard on the heels of the industrial revolution completed the agricultural monopoly.

The stories of Hargreaves, Crompton, Arkwright, Cartwright, Watt, Bolton, Brindley, Macadam and Telford, and their great improvements in manufacturing and transportation are familiar to all students. Somewhat less so, but still available, are the records of Lord Townshend and his turnips, Jethro Tull and "horse-hoeing," Robert Bakewell and his "New Leicester" sheep, and Arthur Young, the universal observer and recorder of agricultural knowledge. The connection between the two great interests is found in the formation of various societies, scientific first and later agricultural. The Society for the Encouragement of Arts, Manufactures and Commerce was instituted at London in 1754. The first volume of its transactions appeared in 1783. Until that time its chief activity had been the offering of money prizes and medals for improvements in many lines ranging from agriculture to colonial policies. During this interval the society had given more than three thousand pounds in cash and seventy-two gold and thirty-one silver medals for improvements in agriculture alone.[4] It is further noteworthy that, until the close of the century, rather more than half of each annual volume of its transactions was devoted to agriculture. Members of the Royal Society were glad to contribute to the proceedings of this industrial society, its president, Sir Joseph Banks, for instance, offering so practical a thing as a cure for scab in sheep. The proceedings of the Royal Society, itself, were still closely restricted to "pure science." However, local societies patterned after the older society were formed, especially in the industrial centers of the west of England, and these responded to the new spirit of England. Their membership included a strong representation from the Royal Society and a great number of the leaders in industrial life. The work of the societies at Birmingham and Manchester was colored by their environment, and applied or industrial science as involved in manufactures and transportation and in agriculture as well, found able treatment in their proceedings.[5]

Beginning with the Bath and West of England Society in 1777 and the Highland Society in 1784, many purely agricultural organizations were formed. The last decade of the century saw a tremendous impetus given to the study of agricultural problems. The increasing interest is clearly indicated by the swelling flood of agricultural books of many degrees of worth that appeared. Some of these came from the pens of able men who had given years to the study of practical agriculture on their great estates; some were evolved from the brains of pedantic theorists far removed from the soil. Local societies were multiplied all over the British Isles. Pattern or experimental farms were established in some of the counties. One of the great leaders in this awakening was Sir John Sinclair, as a result of whose activities the Board of Agriculture was incorporated in 1793.[6] The surveys made by the Board and the communications addressed

[1] Philadelphia Society for Promoting Agriculture, Memoirs, I, iv.

[2] Baker, John Wynn, Short Description and List . . . of the Instruments of Husbandry. . . . Dublin, 1769, p. 2.

[3] Prothero, R. E., English Farming, Past and Present, 208.

[4] Transactions of the Society . . . of Arts, Manufactures and Commerce, Vol. I, pp. 3-5.

[5] Literary and Philosophical Society of Manchester, Memoirs, I-III.

[6] Communications to the Board of Agriculture, I, preface. Philadelphia Society, I, pp. xxix-xxx.

to it in response to its many inquiries are the basis for much of the present insight into agricultural conditions of the time. The Smithfield Club organized in 1798 perpetuated the work of the old Smithfield Fair in the improvement and increase of live stock and made a national standard for local breeders and clubs. Prizes offered by all of these societies encouraged progress in every form of agricultural activity, so that even the laborers on the farms felt the stimulus in the new movement. In all this the leaders and exponents of the industrial revolution were found working along with the landed aristocracy whose interests were so much at stake.

England's selfish policy and the agricultural opportunities in this country combined to keep back the manufacturing revolution until the Napoleonic wars forced its growth. But it was otherwise with the agricultural revolution. Some of this was native to American soil, some of it was imported. Men of wealth and intelligence owned many of the great farms in a country almost entirely given to agriculture. The failing soil of some of the older sections was already forcing these able men to look about for remedies. The leaders in commercial life in our cities, even in the days of the Revolution, saw that American farming was in a bad way, and began to work for betterment.[7] Besides, there was no English embargo on the export of agricultural ideas. Washington at Mt. Vernon carried on serious experiments in crop rotation and marling the soil of the wornout Virginia hills. He corresponded freely with Arthur Young and even contemplated bringing English experts over to handle his farms.[8] The books of Young and other British writers on agriculture found a prominent place in his library at Mount Vernon. This was but a conspicuous example. Spinning mules and power looms might not be imported from England, but seeds, plants, and, in some cases, improved live stock, and best of all agricultural knowledge came freely.

Local agricultural societies were formed in America almost contemporaneously with the early ones in England. The Charleston, South Carolina, society was founded in 1784. It was the first to propose an experimental farm. The Philadelphia Society for Promoting Agriculture was formed in 1785 "by some citizens, only a few of whom were actually engaged in husbandry, but who were convinced of its necessity." After meeting more or less regularly for a few years its effects culminated in 1794 in a plan submitted to the legislature for the incorporation of a state society. When this failed interest lapsed and nothing more was heard of the society until it was revived in the winter of 1804.[9] The New York Society for the Promotion of Agricultural Arts and Manufactures was created in 1791 and published a volume of its proceedings the next year. The Massachusetts Society for Promoting Agriculture was incorporated in March, 1792, and its work though fitful was continuous thereafter. The Connecticut organization of the same name was started in 1794 and eight years later was able to publish its accumulated "Transactions" in a pamphlet of twenty-one pages. These early societies offered premiums for experiments in wheat culture, discovery of new fertilizers, recovery of wornout fields, improving wild lands, feeding cows and ewes for milk production and destruction of insect pests—in Massachusetts the canker worm. The Philadelphia list included live stock and dressed meats as well as dairy products. The Massachusetts list included wool clips and the best and most expeditious method of making maple sugar.[10] Olive oil, hops and vine products appeared on the Charleston list. The lists show familiarity with the lists of the London Society of Arts and the English agricultural societies. The Philadelphia plan of 1794 proposed a scheme of agricultural education, including endowed chairs in the University of Pennsylvania and Dickinson College, and the teaching of agriculture in the county and township schools with the co-operation of the county societies which the plan contemplated. In its exposition of the wisdom and feasibility of this "new education" this plan anticipates most of the favorite arguments of present-day advocates of vocational education.[11] The Massachusetts Society began some occasional publications at a very early date. Copious extracts from the proceedings of the Bath, Burlington and Halifax societies were reprinted showing again the guiding influence of English agricultural thought.[12] The membership in these early societies was marked by the presence of all the prominent leaders in public life, commerce and industry, in the respective communities. Washington and Franklin belonged to the Philadelphia Society. John and Samuel Adams, John Hancock, Fisher Ames, Josiah Quincy and Samuel Pomeroy were members of the Massachusetts organization. Nor was the constituency purely local. The lists of honorable members included many in neighboring and distant states of the union and not a few in England. Arthur Young and

[7] Philadelphia Society, I, pp. i-ii.

[8] Haworth, Paul Leland. George Washington, Farmer. Professor W. C. Abbott, in "Some Unpublished Washington Letters," in the "Nation" (New York), vol. 65, pp. 219-221, gives practically all that is known of James Bloxham whom Washington secured from William Peacy, of Gloucestershire, England, to act as farm manager at Mount Vernon. He served from May, 1786, to June, 1790. His quaint observations on the crude conditions of farming in America, his fear that the negro slaves might poison him, and his request for a "Light an Deasent plow" and some "Sanfine" seed from England throw an interesting sidelight on American agriculture and its English connections. On page 298 of the same volume of the "Nation," Mary S. Beall publishes the original articles of agreement between Washington and Bloxham. Curiously enough, Haworth and other writers on Washington seem to have overlooked this unique item, though it was in print nearly twenty years ago.

[9] Philadelphia Society, Memoirs, I, Preface.

[10] Ibid, pp. xxxi-xxxv. Massachusetts Society, Papers, Vol. I, pp. 13-15.

[11] Philadelphia Society, I, pp. xxiii-xxv.

[12] Massachusetts Society, Papers, I, passim.

other leaders on the other side were honorary members of the American societies. President Samuel Deane, of Bowdoin College, a member of the Massachusetts Society from its beginning, in 1790 brought out his "New England Farmer or Georgical Dictionary, containing a Compendious Account of the Ways and Means in which the Important Art of Husbandry, in all its various branches, is, or may be, practiced to the greatest advantage in this country." The work reached its second edition in 1797. In method and matter it shows clearly the influence of the current English agricultural literature. J. R. Bordley, a Philadelphia business man and member of the agricultural society, who had retired to a farm in Maryland, in 1799 published "Essays and Notes on Husbandry and Rural Affairs." It is confessedly based on the work of Tull and Young supplemented by his own observations and experiments. Bordley seems to have been moved to publish this book because of the failure of the early Philadelphia society to which he had looked hopefully for much help. Even the American Philosophical Society, founded at Philadelphia before the Revolution, admitted to its transactions many contributions to agricultural knowledge.[13]

What has been said of the universal appeal of the agricultural awakening in America, of its connection with the English movement, and of its intimate connection with industry in general is even truer during the early decades of the nineteenth century, the period of the "domestication of the factory system." Few, if any, of our leaders in public life were out of touch with things rural and agricultural. Most of them were direct products of plantation and farm life and keenly alive to its needs. Jefferson and Madison in their old age corresponded with each other and with New and Old World friends on matters of agriculture. Even the questions of agricultural economics presented in the great Roman classics were of vital interest to them. Henry Clay, the sponsor for the American System and the Bank of the United States, imported Hereford cattle. Instances such as these might be multiplied. Even educational institutions responded somewhat to the call, though in no such way as the Philadelphia Society had hoped in 1794. A professorship in chemistry and mineralogy as applied to agriculture was created in the University of Pennsylvania early in the century. This institution and Dickinson College were noted for their attention to applied sciences. It is noteworthy that Thomas Cooper, an English-trained chemist and friend of Priestley and late a manufacturing bleacher and dyer of Manchester, England, held successively the chairs of applied science in Dickinson and the University of Pennsylvania, that at the former place the DuPonts of Delaware were his disciples while at the latter the Pennsylvanians learned the elements of soil analysis and commercial fertilizers from him. Jefferson proposed to have teachers of agriculture in the University of Virginia, and in this he received support from Madison and outspoken approval from Cooper whom he intended for the "first professor" of his institution, and who afterwards, as President of South Carolina College, never ceased to urge the matter of agricultural education.

The period from 1807 to 1815 saw the foundation of American manufactures. It was also the beginning of American agriculture in the modern sense. About 1810 the Philadelphia and Massachusetts societies became very active. Many others were formed and within a few years they were numbered by scores. A study of the printed memoirs and transactions of these societies at once reveals the close connection between the new interest in agriculture and the industrial revolution then in process. More than ever their personnel included the leaders in manufacturing, commercial and public life. Philadelphia was then our chief industrial and commercial city, comparable in a way to Manchester in England. The Philadelphia Society extended its premiums to cover many new problems in agriculture and even to improvements in household manufactures. It interested itself in roads, bridges and canals and devoted much space to them in its memoirs. From the so-called industrial interests themselves came emphatic proof of the connection between agriculture and industrial growth. The "Emporium of Arts and Sciences" established in 1812, at Philadelphia for the promotion of manufactures devoted a liberal share of its space to agriculture, especially as related to manufactures. Niles' "Weekly Register," established at Baltimore in 1811, was consecrated to protection and manufactures, but eagerly published every item of agricultural advance. The manufacturing enthusiasts rejoiced over the coming of the Spanish Merinos even when some agricultural writers were pessimistic on the subject.[14] The second decade of the century saw a swelling flood of scientific books published in this country, especially at Philadelphia. Largely reprints, revisions and abridgments of English works, they brought to our shores the contemporary English scientific thought. In general applied science was exalted. In this "transit of civilization" agriculture shared generously. The agricultural revolution in England preceded the industrial revolution, but in the end was inseparable from it. The same thing is true in America. As in manufactures and transportation we drew largely from England for our modern beginnings so in a somewhat less degree we are indebted to the mother country for our agricultural revolution in its earlier stages.

In "The Yale Review" for October, Henry Osborn Taylor endeavors to find a reason for the apparent destiny which drives unwilling men, governments and non-combatants to bloody fighting, in his article on "Wisdom of Ages." He reaches no definite conclusion save "for good and ill, the war has re-energized individuals and nations," while "restraint and sacrifice are needed still in order to rationalize or emotionalize the currents of human conduct."

[13] American Philosophical Society, Early Proceedings, passim.

[14] Massachusetts Society, Vol. I, No. 5. Niles' Register, Vols. I-VIII.